GSM/GPRS/GPS Tracker **GV500**

User Manual

TRACGV500UM001

Revision: 1.00

Document Title	GV500 User manual
Version	1.00
Date	2013-08-20
Status	Release
Document Control ID	TRACGV500UM001

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0. Revision history

Revision	Date	Author	Description of change
1.00	2011-8-16	Leo LEI	Initial

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1. Introduction

The GV500 is a powerful GPS locator designed for vehicle or asset tracking. It has superior receiver sensitivity, fast TTFF (Time to First Fix) and supports Quad-Band GSM frequencies 850/900/1800/1900, its location can be monitored in real time or be periodically tracked by a backend server or other specified terminals. The GV500 has multiple input/output interfaces that can be used for monitoring or controlling external devices. Based on the integrated @Track protocol, the GV500 can communicate with a backend server through the GPRS/GSM network to transfer reports of Emergency, geo-fence boundary crossings, low backup battery or scheduled GPS position as well as many other useful functions. Users can also use GV500 to monitor the status of a vehicle and control the vehicle by its external relay output. System Integrators can easily setup their tracking systems based on the full-featured @Track protocol.

1.1. Reference

Table 1: GV500 Protocol Reference

SN	Document name	Remark
[1]	GV500 @Track Air Interface Protocol	The air protocol interface between GV500 and backend server.

1.2. Terms and Abbreviations

Table 2: Terms and Abbreviations

Abbreviation	Description
PWR	External Power Supply
GND	Ground
OBD	On-Board Diagnostics
SAE	Society of Automotive Engineers

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2. Product Overview

2.1. Description

GV500 is based on the OBD II interface GPS vehicle tracking device, compact design and easy to install. GV500 contains an OBD II connector which complies with J1962 standard, a 10PIN USB connector, an internal GSM antenna, an internal GPS antenna and three LEDs.

Figure 1. Appearance of GV500

2.2. Parts List

Table 3: Part List

Name	Picture
GV500 Locator	48mm*25mm*48mm
DATA_CABLE_M (Optional)	

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2.3. Interface Definition

The GV500 has an OBD II connector. It contains power supply and interfaces of CAN bus, K-line, L-line and J1850 bus. The sequence and definition of the OBD II connector are shown in following figure:

Figure 2. The OBD II connector on the GV500

Table 4: Description of OBD II Connections

Index	Description	Comment
1	PWR	External DC power input, 8-32V
2	L-line	L line of ISO 9141-2 and ISO 14230-4
3	CAN-L	CAN-L line of ISO 15765-4
4	J1850-	Bus negative line of SAE J1850
5	K-line	K line of ISO 9141-2 and ISO 14230-4
6	CAN-H	CAN-H line of ISO 15765-4
7	GND	Power and digital ground
8	GND	Power and digital ground
9	J1850+	Bus positive line of SAE J1850

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3. Getting Started

3.1. Opening the Case

Insert the triangular-pry-opener into the gap of the case as shown below, push the opener up until the case unsnapped.

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Figure 3. Opening the Case

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3.2. Closing the Case

The battery is glued to top cover, so before closing the case you should let the battery connector plugged in. The step of closing case is shown as following:

Figure 4. Closing the Case

3.3. Installing a SIM Card

Open the case and ensure the unit is not powered. Slide the holder right to open the SIM card. Insert the SIM card into the holder as shown below with the gold-colored contact area facing down taking care to align the cut mark. Close the SIM card holder. Close the case.

Figure 5. SIM Card Installation

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3.4. Installing the Internal Backup Battery

Figure 6. Backup Battery Installation

There is an internal backup Li-ion battery.

3.5. Device Status LED

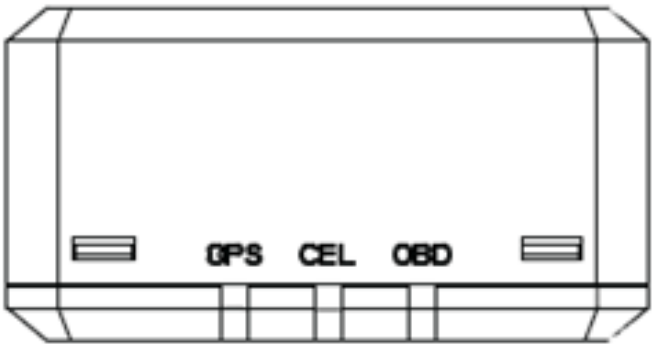

Figure 7. GV500 LED on the Case

Table 5: Definition of Device status and LED

LED	Device status	LED status
CEL (note1)	Device is searching GSM network	Fast flashing (Note3)
	Device has registered to GSM network.	Slow flashing (Note4)
	SIM card needs pin code to unlock.	ON
GPS (note 2)	GPS chip is powered off	OFF
	GPS sends no data or data format error.	Slow flashing
	GPS chip is searching GPS info.	Fast flashing
	GPS chip has gotten GPS info.	ON
OBD (note 2)	No external power and internal battery voltage is lower than 3.35V.	OFF
	No external power and internal battery voltage is below 3.5V.	Slow flashing
	External power in and internal battery is charging	Fast flashing
	External power in and internal battery is fully charged	ON

Note:

1 - CEL LED cannot be configured.

2 - GPS LED and OBD LED can be configured to turn off after a period of time using the configuration tool

3 - Fast flashing is about 60ms ON/ 780ms OFF

4 - Slow flashing is about 60ms ON/ 1940ms OFF

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4. OBD II-related features

4.1. Communication Protocols

GV500 could monitor the OBD II system via not only communication protocols which defined by SAE but also some special protocols. The list of protocols is shown as follow:

Table 6: Communication Protocols List

No.	Protocol	Comment
1	J1850 PWM	41.6kb/s FORD
2	J1850 VPW	10.4kb/s GM/Chrysler
3	ISO 9141-2	5 Baud init automatic baud rate
4	ISO 14230	5 Baud init 10.4kb/s
5	ISO 14230	Fast init 10.4kb/s
6	ISO 15765	ID 11bits 500kb
7	ISO 15765	ID 29bits 500kb
8	ISO 15765	ID 11bits 250kb
9	ISO 15765	ID 29bits 250kb
10	J1939	ID 29bit 250kb
11	CAN_USER1	11*bits 125*kb
12	CAN_USER2	11*bits 50*kb
13	VW TP2.0	Volkswagen CAN protocol

4.2. OBD II Parameters

The following are parameters which are read through OBD II system by GV500:

1) Vehicle identification number(VIN):
2) Revolutions per minute of the engine(RPM)
3) Vehicle road speed
4) Battery voltage of vehicle
5) Malfunction Indicator Lamp(MIL)
6) Fuel consumption
7) Diagnostic Trouble Codes(DTC)
8) Distance Statistics
9) Engine coolant temperature
10) Parameter identification(PID)

Note:

1 - The VIN is the unique identifier of Vehicle. Please note that not all Vehicle support getting the VIN from OBD II system, because the Vehicle manufacturers are responsible for defining the data

return from OBD II system.

2 - Distance Statistics: GV500 could get the distance in two case: distance accumulated since MIL is activated and distance accumulated since DTCs were cleared.

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